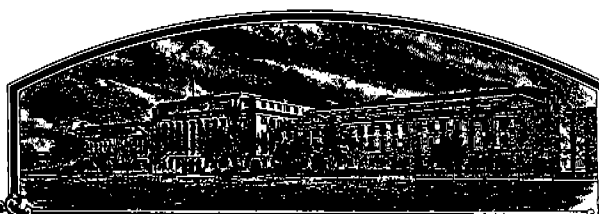


Reissued in July 1954

No.

7700021



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

SeedTee International Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF seventeen YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. IN THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS OF THE VARIETY OWNED BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

SAFFLOWER

'S-317'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington this 11th day of May in the year of our Lord one thousand nine hundred and seventy-eight.

Attest

Kenneth A. Evans
Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

John R. Block
Secretary of Agriculture

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

INSTRUCTIONS: See Reverse.

1. VARIETY NAME OR TEMPORARY DESIGNATION S-317	2. KIND NAME Safflower	FOR OFFICIAL USE ONLY PV NUMBER 7700021	
3. GENUS AND SPECIES NAME <u>Carthamus tinctorius</u>	4. FAMILY NAME (Botanical) Compositae	FILING DATE 12-27-76	TIME 9:00 A.M. P.M.
	5. DATE OF DETERMINATION December 1, 1976	FEE RECEIVED \$ 250.00	BALANCE DUE \$ 4-12-77
		\$ 250.00	\$ 1-10-78
6. NAME OF APPLICANT(S) Pacific Oilseeds Incorporated	7. ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code) P. O. Box 1008 Woodland, CA 95695	8. TELEPHONE AREA CODE AND NUMBER (916) 662-8623	
9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: (Corporation, partnership, association, etc.) Corporation		10. STATE OF INCORPORATION California	11. DATE OF INCORPORATION 1954

12. Name and mailing address of applicant representative(s), if any, to serve in this application and receive all papers:

Dr. Carl E. Claassen
P. O. Box 1008
Woodland, CA 95695

13. CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:

- ☒ 13A. Exhibit A, Origin and Breeding History of the Variety (See Section 52 of the Plant Variety Protection Act.)
- ☒ 13B. Exhibit B, Botanical Description of the Variety
- ☒ 13C. Exhibit C, Objective Description of the Variety
- ☒ 13D. Exhibit D, Data Indicative of Novelty
- ☒ 13E. Exhibit E, Statement of the Basis of Applicant's Ownership

14A. Does the applicant(s) specify that seed of this variety be sold by variety name only as a class of certified seed? (See Section 83(a). (If "Yes," answer 14B and 14C below.) ☒ YES ☒ NO14B. Does the applicant(s) specify that this variety be limited as to number of generations? ☐ YES ☐ NO14C. If "Yes," to 14B, how many generations of production beyond breeder seed? ☒ FOUNDATION ☒ REGISTERED ☒ CERTIFIED

The applicant declares that a viable sample of basic seed of this variety will be deposited upon request before issuance of a certificate and will be replenished periodically in accordance with such regulations as may be applicable.

The undersigned applicant(s) of this sexually-reproduced novel plant variety believes that the variety is distinct, uniform, and stable as required in Section 41 and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Applicant is informed that false representation herein can jeopardize protection and result in penalties.

Dec 1, 1976
(DATE)

Carl E. Claassen
(SIGNATURE OF APPLICANT)

(DATE)

(SIGNATURE OF APPLICANT)

7700021

EXHIBIT A

Origin and Breeding History of the Variety

S-317 resulted from a multiple cross F₁ (261-3-40-4-1 x Pacific 4) x UC-1) x (261-3-40-4-1 x Pacific 4) x (Frio x USDA 14154).

The cross was made by personnel of Pacific Oilseeds Incorporated in the summer of 1969. The F₁ from this cross was grown in the greenhouse in the winter of 1969-70. The F₂ was grown in the field in 1970 and a number of F₂ plants were selected. In 1971 the seed from ten selfed plants were bulked from one F₃ line. In the summer of 1972 a number of individual F₄ plant selections were selfed from this bulk. Plant no. 6 was selected from this bulk. It was yellow-flowered, high oleic, and had 46.6% oil (NMR). In 1973 five F₅ single plant selections were made in the field. These plants had the following analyses:

Plant no.	I.V. <u>Calculation</u>	<u>C-16</u>	<u>C-18</u>	<u>C18:1</u>	<u>C18:2</u>
317-1	89.83	4.8	2.0	78.9	12.8
317-2	89.40	4.7	2.1	80.6	11.7
317-3	90.18	4.7	1.9	80.4	12.2
317-4	89.29	4.6	2.0	81.5	11.1
317-5	89.27	4.9	2.0	81.1	11.3

Plant no. 317-1 was discarded. Between 15 and 35 seed from each of the other four F₆ plants were planted in the greenhouse in the fall of 1973. Each line and plant were harvested separately and planted in summer of 1974 in a small isolated field planting. Each F₇ sub-line was harvested separately. All sub-lines appeared visually the same and oil analyses were very similar with an average oil percentage of approximately 44% (NMR). This material, 150 pounds, was bulked as breeders seed. One hundred twenty-five pounds of this breeder's seed was increased this winter in Mexico and is being planted the summer of 1975 for further increase in the Sacramento Valley as non-certified seed.

Twenty-five pounds of this breeder's seed was kept back and has been planted in isolation for the purpose of producing Foundation seed.

7700021

EXHIBIT B

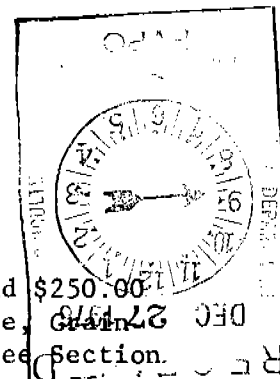
S-317 is pure yellow flower color whose florets also dry down to a yellow color. The bracts are spiny, lanceolate, and somewhat narrower and longer than Gila. The seed is relatively small in size and is grey-striped in appearance. When cultural conditions are favorable, this variety tends to exhibit extended branching and heading. This is not a common trait in safflower. Head size is medium to small and test weight is fairly high 41-42 pounds per bushel. Average height is 4-6 inches taller than Gila.

INSTRUCTIONS

GENERAL: Send an original copy of the application, exhibits and \$250.00 fee to U.S. Dept. of Agriculture, Agricultural Marketing Service, Grain Division, 6525 Belcrest Road, Hyattsville, Maryland 20782. (See Section 180.175 of the regulations and rules of practice.) Retain one copy for your files. All items on the face of the form are self-explanatory unless noted below.

ITEM

- 5 Insert the date the applicant determined that he had a new variety based on the definition in Section 41 (a) of the Act and decision is made to increase the seed.
- 13a First, give the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method. Second, give the details of subsequent stages of selection and multiplication. Third, indicate the type and frequency of variants during reproduction and multiplication and state how these variants may be identified. Fourth, provide evidence on stability.
- 13b First, give any special characteristics of the seed and of the plant as it passes through the seedling stage, flowering stage and the fruiting stage. Second, describe the mature plant and compare it with a similar commercial variety grown under the same conditions, and indicate the differences.
- 13c A supplemental form will be furnished by the PVPO to describe in detail a variety for each kind of seed.
- 13d Provide complete data indicative of novelty. Seed and plant specimens or photographs of seed and plant comparisons clearly indicating novelty may be submitted. Seeds submitted may be sterile.
- 13e Indicate whether applicant is the actual breeder, the employer of the breeder, the owner through purchase or inheritance, etc.



OBJECTIVE DESCRIPTION OF VARIETY
SAFFLOWER (CARTHAMUS TINCTORIUS)

INSTRUCTIONS: See Reverse.

NAME OF APPLICANT(S) Pacific Oilseeds Incorporated		FOR OFFICIAL USE ONLY	
ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code)		PVPO NUMBER 7700021	
		VARIETY NAME OR TEMPORARY DESIGNATION S-317	

Place the appropriate number that describes the varietal character of this variety in the boxes below.
Place a zero in first box (e.g. **0 8 9** or **0 9**) when number is either 99 or less or 9 or less.

1. MATURITY (From Emergence):

1 Location: 1 = CALIFORNIA & ARIZONA 2 = MIDWEST **1 3 0** NO. OF DAYS TO MATURITY

0 0 NO. OF DAYS EARLIER THAN **0 0** }
0 3 NO. OF DAYS LATER THAN **2** } 1 = GILA 2 = FRIO 3 = US-10

3 Maturity Class: 1 = EARLY (less than 110 days) 2 = MEDIUM EARLY (110 to 120 days)
 3 = MEDIUM LATE (121 to 130 days) 4 = LATE (more than 130 days)

2. PLANT HEIGHT AT MATURITY:

0 7 6 CM. HEIGHT **0 0** CM. SHORTER THAN **0 0** }
1 2 CM. TALLER THAN **2** } 1 = GILA 2 = FRIO 3 = US-10

3. FLOWER COLOR:

	Fresh Flower	Wilted Flower	Fresh Flower	Wilted Flower
0 4 Type:	01 = WHITE	GREYISH-WHITE	07 = ORANGE	LIGHT RED
	02 = LIGHT YELLOW	GREYISH-WHITE	08 = REDDISH ORANGE	DEEP RED
	03 = LIGHT-ORANGE BASE	ORANGE BASE	09 = YELLOW BASE & TIPS	OF LOBES ORANGE
	04 = YELLOW	YELLOW (US-10)	10 = PALE-YELLOW	PALE-YELLOW
	05 = YELLOW	LIGHT ORANGE BASE	11 = OTHER (Specify)	
	06 = YELLOW	ORANGE (Gila)		

4. SPINES ON INVOLUCRAL BRACTS:

2 1 = ABSENT 2 = PRESENT

3 Location: 1 = TIP ONLY 2 = TIP & FEW BASAL 3 = TIP & ALONG MARGINS 4 = MARGINS ONLY

0 3 MM. LENGTH (A) **1 4** NUMBER (B) **0 4 2** SPINE INDEX (A x B)

3 Spine Index Class: 1 = 0-20 2 = 21-40 3 = 41-60 4 = 61-80 5 = 81-100 6 = 101-120

5. HEADS (For Plant Populations of 593,000 Plants/Hectare):

0 2 2 MM. DIAMETER (Primary Heads)

1 Seed Shattering Percentage: 1 = 1-10 2 = 11-30 3 = OVER 30

6. SEED:

5 Color: 1 = WHITE 2 = CREAM 3 = GRAY 4 = GRAY WITH WHITE TIP
 5 = GRAY STRIPED 6 = PURPLE STRIPED 7 = BROWN STRIPED 8 = BROWN BLOTCH
 9 = OTHER (Specify)

3 Hull Type: 1 = NORMAL 2 = THIN-HULLED 3 = STRIPED 4 = REDUCED

0 4 MM. WIDTH **0 8** MM. LENGTH **0 3 9** GRAMS PER 1000 SEED

7. SEEDLING VIGOR: (6 weeks after seeding at 2.5 cm. depth with ample moisture for germination; mean of 20 plants)

1 2 NUMBER OF NODES **0 1 7** CM. TALL (Soil Surface to Tip)

EXHIBIT D

'S-317'

PV # 7700021

'S-317' is the first commercially released high oleic type safflower with a high level of resistance to Fusarium root rot. Compared to other high oleic varieties 'S-317' is yellow flowered while 'U.C. 84' and 'Oleic Leed' are orange flowered. 'S-317' has smaller heads and is more extensively branched than 'U.C. 1.'

Pacific Oilseeds Incorporated

Oct 17, 1977 By Carol E Moosman

TABLE 2

COMPARATIVE YIELD DATA OF S-317 AND S-400

WITH COMMERCIALY GROWN VARIETIES OF OUR OWN IN 1976

Variety	<u>Test No. 1</u>			<u>Test No. 2</u>			<u>Test No. 3</u>			<u>Test No. 4</u> (Fusarium infested soil)			
	<u>Yield</u> <u>lbs/acre</u>	<u>Test</u> <u>weight</u>	<u>%</u> <u>oil</u> <u>NMR</u>	<u>Yield</u> <u>lbs/acre</u>	<u>Test</u> <u>weight</u>	<u>%</u> <u>oil</u> <u>NMR</u>	<u>Yield</u> <u>lbs/acre</u>	<u>Test</u> <u>weight</u>	<u>%</u> <u>oil</u> <u>NMR</u>	<u>Yield</u> <u>lbs/acre</u>	<u>Test</u> <u>weight</u>	<u>%</u> <u>oil</u> <u>NMR</u>	
S-317	3,204	42.9	42.0	3,914	42.4	43.3	3,937	42.9	44.6	2,791	42.8	43.6	
S-400	3,588	42.2	44.4	3,406	42.2	44.6	3,679	42.2	44.5	2,915	42.2	45.0	
S-296	3,416	42.4	43.3	3,497	42.5	43.0	3,501	42.7	43.0	2,443	42.2	43.6	
S-208	3,058	43.1	43.0	3,759	42.7	43.8	3,676	42.9	43.8	0	-	-	
S-304	3,122	40.7	41.5	3,558	40.3	42.2	3,862	40.4	42.4	0	-	-	

3 replications in each test

77-21

TABLE 3

COMPARATIVE YIELD DATA S-400 and S-296 GROWN IN 1975

TEST LOCATION & NO.	S-400			S-296		
	Ave. Yield	T.W.	Oil%	Ave. Yield	T.W.	Oil%
75-8 River Garden Farms	2,947	40.6	46.0	2,683	40.8	44.5
75-86 River Garden Farms	3,361	40.4	46.0	3,038	40.5	43.8
75-81 River Garden Farms	3,395	39.7	46.0	3,232	39.8	44.5
75-50 River Garden Farms	3,436	39.8	46.4	3,620	40.5	45.0
75-4 Butte City	1,859	39.0	44.2	1,862	38.7	42.2
AVERAGE	3,000	40.0	46.0	2,887	40.1	44.0

Average of 5 replications in each test

77-21

8. COLD RESISTANCE AT DIFFERENT STAGES AND TEMPERATURES:

<input type="checkbox"/> Rosette:	} 1 = -10° C. 2 = -5° C. 3 = 0° C. 4 = 5° C. 5 = 10° C.
<input type="checkbox"/> Bolting:	
<input type="checkbox"/> Flowering:	

9. DISEASE: (0 = Not Tested; 1 = Susceptible; 2 = Resistant)

<input checked="" type="checkbox"/> 1 RUST (Specify races) _____	<input checked="" type="checkbox"/> 2 PHYTOPHTHORA ROOT ROT	<input type="checkbox"/> 0 PYTHIUM ROOT ROT
<input checked="" type="checkbox"/> 2 FUSARIUM WILT	<input checked="" type="checkbox"/> 2 VERTICILLIUM WILT	<input type="checkbox"/> 0 CERCOSPORA LEAF SPOT
<input type="checkbox"/> 0 SCLEROTINA STEM ROT	<input type="checkbox"/> 0 ALTERNARIA LEAF SPOT	<input type="checkbox"/> 0 ALTERNARIA BUD ROT
<input type="checkbox"/> 0 BOTRYTIS HEAD ROT	<input type="checkbox"/> 0 RHIZOCTONIA BLIGHT	<input type="checkbox"/> 0 BACTERIAL BLIGHT
<input type="checkbox"/> 0 CUCUMBER MOSAIC	<input type="checkbox"/> 0 PHYLLODY	<input type="checkbox"/> OTHER (Specify) _____

10. INSECT AND NEMATODE: (0 = Not Tested; 1 = Susceptible; 2 = Resistant)

<input checked="" type="checkbox"/> 1 GREEN PEACH APHID	<input type="checkbox"/> 0 LEAF-CURL PLUM APHID	<input type="checkbox"/> 0 BLACK BEAN APHID
<input checked="" type="checkbox"/> 1 WESTERN FLOWER THRIPS	<input checked="" type="checkbox"/> 1 LYGUS BUGS	<input type="checkbox"/> 0 STINKBUGS
<input type="checkbox"/> 0 ROOT-KNOT NEMATODE	<input type="checkbox"/> OTHER (Specify) _____	

11. INDICATE A VARIETY THAT MOST CLOSELY RESEMBLES THAT SUBMITTED:

CHARACTER	VARIETY	CHARACTER	VARIETY
Frost Hardiness		Lodging	
Seed Shattering		No. of Branches	Frio
Seedling Vigor			

12. GIVE THE FOLLOWING DATA FOR SUBMITTED AND A SIMILAR VARIETY *:

VARIETY	HULL (%)	PROTEIN (%)	OIL (%)	IODINE (%)	ACIDS SATURATED (%)	ACIDS UNSATURATED	
						OLEIC (%)	LINOLEIC (%)
Submitted S-317	32.8	17.8	42	92.0 Wajs	7.2	76.4	15.5
Similar	38.0	16.5	39	144 Wajs	7.0	16.0	76.0
Name of Similar Variety	Frio	Frio	Frio	Frio	Frio	Frio	Frio

*Hull, protein, and oil percentages expressed for whole undecorticated seed; acids expressed as percentages of oil.

REFERENCES

- Knowles, P.F. & M.D. Miller. 1965. Safflower. Cal. Ag. Exp. Sta. Circ. 532. 51 p.
 - Weiss, E.A. 1971. Castor, Sesame, and Safflower. Barnes & Noble, Inc. N.Y. 901 p.
- Nickerson's or any recognized color fan may be used to determine plant colors of described variety.

COMMENTS:

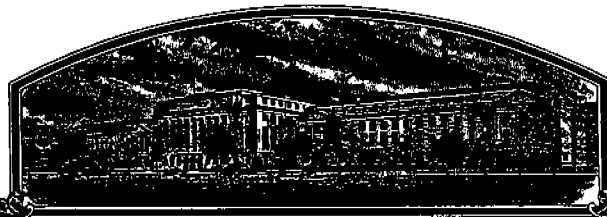
7700021

EXHIBIT E

Pacific Oilseeds Incorporated, Woodland, California, believes it is the sole, original and first breeder of the S-317 variety of safflower for which it solicits a certificate of protection.

No.

7700021



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

SeedTec International, Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE
Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *seventeen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT (7 U.S.C. 2321 ET SEQ.)

SAFFLOWER

'S-317'



Attest

Kenneth H. Evans
Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

In Testimony Whereof, I have hereunto set
my hand and caused the seal of the Plant
Variety Protection Office to be affixed
at the City of Washington
this 11th day of May in
the year of our Lord one thousand nine
hundred and seventy-eight.

John R. Block
Secretary of Agriculture